

**ENVIRONMENTAL ASSESSMENT FOR IMPLEMENTATION OF THE
FORT HOOD INTEGRATED TRAINING AREA MANAGEMENT
SHORT RANGE WORK PLAN, 2007 – 2011**



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NOVEMBER 2006

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EXECUTIVE SUMMARY

Fort Hood has developed an Integrated Natural Resources Management Plan (INRMP) for fiscal years (FY) 2006-2010 (III Corps and Fort Hood, 2006). This INRMP will allow Fort Hood to achieve its goal to ensure the sustainability of desired military training area conditions while maintaining ecosystem viability. The INRMP also contains an environmental assessment (EA) required for compliance with the National Environmental Policy Act (NEPA).

The Fort Hood Integrated Training Area Management Program (ITAM) is responsible for sustaining the installation's training lands. Fort Hood ITAM consists of five components: Range and Training Land Assessment (RTLA), Geographic Information Systems (GIS), Training Requirements Integration (TRI), Land Rehabilitation and Maintenance (LRAM), and Sustainable Range Awareness (SRA).

Fort Hood ITAM has prepared a short range work plan for FY07-11. The Plan is a dynamic training area management program intended to integrate ITAM into the broader context of the Sustainable Range Program and the Installation Sustainment Program. The Plan facilitates coordination between the management programs involved with maintaining ranges and training lands, training facilities, and the environment. Execution of the Plan will sustain training, land resources, and trails by reducing erosion, sedimentation rates (and bare ground), improving water quality, restoring unserviceable land, and improving overall land conditions and health.

As a supplement to the INRMP, an EA has been prepared for the Plan to comply with NEPA. Three alternatives were considered in this EA, a no action alternative, a partial funding alternative, and the preferred alternative. The management measures set forth in the Plan would not be implemented under the no action alternative. Only the actions described in the INRMP would be implemented. Therefore, the level of training area management would be significantly less than compared to the Preferred Alternative.

The partial funding alternative considers potential benefits and impacts to the environment resulting from a partial implementation of the Plan. If the ITAM program were to receive 50% of funding requested, the Plan would be implemented accordingly. This alternative represents the proposed action. While not providing the level training area management compared to the preferred alternative, this alternative is more beneficial to training area management than the no action alternative.

The preferred alternative implements the Plan for FY07-11. This alternative provides the most benefits to the environment and training area management.

This EA has determined that known, potential, and cumulative impacts of the proposed action on the human and natural environment will likely be beneficial. Implementation of the ITAM Short Range Work Plan for FY07-11 should result in an improvement of land rehabilitation and training area availability. The preferred alternative is in accordance with the INRMP and other land-use management agreements with non-Army agencies and parties. This improvement of training area conditions would complement the INRMP guidance.

Although certain training areas will be deferred from training each FY, these areas will be given the opportunity for restorative practices to take effect. Ultimately, these areas will provide improved training resources for Fort Hood. Therefore, it is determined that a Finding of No Significant Impact is appropriate for the proposed action, and a Notice of Intent to prepare an Environmental Impact Statement is not warranted.

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SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT FOR THE FORT HOOD INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN

Integrated Training Area Management Short Range Work Plan

1.0 INTRODUCTION

1.1 Fort Hood Integrated Natural Resources Management Plan

Fort Hood has prepared an Integrated Natural Resources Management Plan (INRMP) to guide the natural resources management program from fiscal years (FY) 2006 – 2010, and to provide a solid foundation on which to build the program beyond 2010. This INRMP will allow Fort Hood to achieve its goal to ensure the sustainability of desired military training area conditions while maintaining ecosystem viability. In addition, this INRMP will ensure that natural resource conservation measures and Army activities on Fort Hood land are integrated and consistent with federal stewardship requirements.

Under the Natural Resource Management on Military Lands Act of 1960 (Title 16 United States Code (USC) § 670a *et seq.*), commonly known as the Sikes Act, as amended by the Sikes Act Improvement Act of 1997, the Secretary of Defense shall carry out a program to provide for the conservation and rehabilitation of natural resources on military installations. To facilitate the program, the Secretary of each military department shall prepare and implement an integrated natural resources management plan for each military installation in the United States under the jurisdiction of the Secretary.

The INRMP also contains the associated documentation required for compliance with the National Environmental Policy Act (NEPA), which requires federal agencies to consider the environmental consequences of major proposed actions. The NEPA documentation is in the form of an Environmental Assessment (EA), which analyzes the potential consequences of the proposed action to implement the Fort Hood INRMP.

1.2 Integrated Training Area Management Program

Under Fort Hood's natural resources management and Integrated Training Area Management (ITAM) programs, there are efforts to protect the natural resources needed in military training. The Fort Hood Integrated Training Area Management Program (ITAM) is responsible for sustaining the installation's training lands. ITAM provides systematic, uniform, training land management capability that ensures no net loss of training capabilities while supporting mission requirements. ITAM also supports sound management practices for cultural and

natural resources, the use of best management practices to support training, and stewardship of land assets in support of training, testing, and other installation missions.

Fort Hood ITAM consists of five components: Range and Training Land Assessment (RTLA), Geographic Information Systems (GIS), Training Requirements Integration (TRI), Land Rehabilitation and Maintenance (LRAM), and Sustainable Range Awareness (SRA).

RTLA acquires data and assesses information to maximize the capability and sustainability of the land to support training and testing activities through collecting, inventorying, monitoring, and managing the land conditions on the installation. ITAM uses RTLA data to identify and determine the effectiveness of LRAM projects, as well as to calculate land condition curves supporting the standard ITAM methodology for estimating training land carrying capacity. RTLA data is also used to create maps depicting the availability, suitability, accessibility, and capacity of training lands.

The Fort Hood ITAM-GIS program provides the tools for management, analysis, and display of geographical data supporting Soldiers in their training mission. GIS capabilities include maps and data to support range modernization planning, operations, and training area management. It analyzes detailed spatial data concerning land conditions, repair decisions and applications. Further, it is the archive to track ITAM land and range management decisions to meet Sustainable Range Program (SRP) and Range and Training Land Program (RTLTP) requirements and support. ITAM-GIS is the main spatial data repository for Fort Hood training lands.

TRI integrates training management as well as natural and cultural resources management and data derived from RTLA to integrate training requirements with land management.

LRAM sustains realistic training conditions and supports the mission requirements through preventative and corrective land rehabilitation and maintenance procedures that reduce the long-term impacts of training and testing on the installation.

SRA provides a means to develop and distribute training materials to enhance Fort Hood land stewardship programs. SRA applies to tactical units, leaders, and Soldiers assigned to or using the installation, tenant activities, installation staff, and all other installation training land users.

An effective ITAM program integrates all land users into the planning and coordination process. This includes installation trainers and planners, and representatives from the Fort Hood Directorate of Public Works (DPW)

Environmental Division and Directorate of Plans, Training, Mobilization, and Security (DPTMS) Range Control.

1.3 Maneuver Training Areas

Fort Hood's mission is to support military training. The range and training areas make up the majority of land use divided into seven land groups (LG) and the live fire area (Figure 1). Table 1 summarizes the land groups.

Table 1 – Fort Hood Land Groups

| Land Group | Training Uses | Indirect Fire Origin | Area (Ac) | TRAINING AREAS (TA) | | | | | |
|--|--|----------------------|-----------|---------------------|----|----|----|----|----|
| LG 1 LG 2 | Light Maneuver, dismounted ops. Bradley Fighting Vehicle Platoons | Yes | 23,097 | 10 | 11 | 12 | 13 | | |
| | | | | 20 | 21 | 22 | 23 | | |
| LG 3A LG 3B | Platoon and Company maneuver Bradley Fighting Vehicle platoon training | Yes | 17,913 | 34 | 35 | 36 | | | |
| | | | | 30 | 31 | 32 | 33 | | |
| LG 4A LG 4B LG 5A LG 5B LG 6A LG 6B | Brigade Combat Team Maneuver and training | Yes | 66,163 | 40 | 41 | 42 | | | |
| | | | | 43 | 44 | 45 | 46 | 47 | 48 |
| | | | | 50 | 51 | | | | |
| | | | | 52 | 53 | | | | |
| | | | | 60 | 61 | 62 | | | |
| | | | | 63 | 64 | 65 | | | |
| LG 7 | Military schools, logistics, combat service support system training | No | 10,115 | 70 | 71 | 72 | 73 | 74 | |

Fort Hood's primary heavy maneuver training lands are LGs three, four, five, and six, consisting of 84,075 acres. The primary Brigade Combat Team (BCT) Maneuver Area of Fort Hood is located west of the live fire area. It includes LGs four, five, and six, and consists of 66,162 acres. The BCT Maneuver Area is the only portion of the installation adequate to support BCT Task Force maneuver training events for mechanized and armored forces. LG three consists of 17,913 acres and normally supports platoon and company level training. LGs one and two consist of 23,097 acres and normally support light maneuver dismount training.

LG seven consists of 10,115 acres and does not support maneuver training. It is normally used for military schools, logistics, and combat support system training. Portions of LGs one and three occasionally support tank and Bradley Fighting Vehicle platoon battle run training. Several of the remaining small training areas are dedicated as Close in Training Areas to support III Corps Major Subordinate Command training. Non-live fire training may occur in any training area on the

installation. Most indirect fire originates in the live fire area and LG three, but may also occur in LGs one, two, four, five, and six. Artillery and Multiple Launch Rocket System firing may temporarily shut down public roads and air corridor routes. Artillery observers and signal units traditionally use high ground in the training areas and those surrounding the live fire area.

1.4 Purpose and Need

Purpose: ITAM has prepared a short range work plan (hereafter referred to as “the Plan”) for FY07-11. The Plan is a dynamic training area management program developed in coordination with installation activities and under the guidance and direction of DPTMS. It intends to integrate ITAM into the broader context of the SRP and the Installation Sustainment Program. The Plan facilitates coordination between the management programs involved with maintaining ranges and training lands, training facilities, and the environment. Execution of the Plan will sustain training, land resources, and trails by reducing erosion and sedimentation rates (and bare ground), improving water quality, restoring unserviceable land, and improving overall land conditions and health.

The ITAM program manages the inventory, evaluation and mitigates training impacts to provide sustainable training areas and meet legal requirements. Untreated impacts can cause unsustainable resource conditions.

Need: Fort Hood exists to train its assigned Soldiers and their units. Training includes a very demanding and tightly scheduled use of ranges and maneuver areas to meet Army standards. Meeting Army training standards requires a realistic landscape possessing topography and vegetation reflecting potential combat theaters. This landscape must provide safe training opportunities and must meet environmental legal requirements. Fort Hood combat units possess large numbers of armored vehicles that can cause substantial impact to the land and resources.

This EA supplements the Fort Hood Integrated Natural Resources Management Plan (INRMP) for FY06-10 and evaluates potential impacts to the human and natural environment resulting from the implementation of the Plan. These impacts are *above and beyond* the scope of the INRMP alone. The Land Rehabilitation and Maintenance, or LRAM component of the Plan contains thirteen separate actions. Three of these actions have been discussed in the INRMP. The other ten actions and their potential impacts to the environment are evaluated in this document.

Implementation of the Plan is greater in scope or size than is normal for this category of action; therefore, the following categorical exclusions from Appendix B to Title 32 of the Code of Federal Regulations (CFR), Section 651 do not apply:

(c)(3) – Road or trail construction and repair on existing rights-of-ways or on previously disturbed areas.

(d)(1) – Land regeneration activities using only native trees and vegetation, including site preparation (does not include forestry operations).

(g)(2) – Routine repairs and maintenance of roads, trails, and firebreaks. Examples include, but are not limited to: grading and clearing the roadside of brush with or without the use of herbicides; resurfacing a road to its original conditions; pruning vegetation, removal of dead, diseased, or damaged trees and cleaning culverts; and minor soil stabilization activities.

Since one or more categorical exclusions do not apply to the proposed action, an EA is the required level of NEPA documentation.

The National Environmental Policy Act of 1969 (Public Law, 40 CFR, etc.), or NEPA, requires Federal agencies to consider potential impacts to the human and natural environment of proposed actions. Chapter 32 CFR Part 651, Environmental Analysis of Army Actions; Final Rule implements NEPA and sets forth the Army's policies and responsibilities for the early integration of environmental considerations into planning and decision-making. This rule provides criteria and guidance on actions normally requiring either an Environmental Assessment (EA) or Environmental Impact Statement (EIS), as well as listing Army actions that are categorically excluded from such requirements provided specific criteria are met.

1.5 Scope

This EA identifies and evaluates potential impacts to the environment resulting from implementation of the Plan and alternatives. This EA, in keeping with the intent of NEPA, focuses on considering a reasonable range of resource-specific management alternatives and developing a plan that could be implemented as a whole in the foreseeable future. Therefore, only the partial funding alternative, preferred alternative, and a no action alternative are addressed.

Particular emphasis is placed on impacts to the maneuver and training areas of Fort Hood. Deviations to this Plan will be analyzed in supplemental NEPA documentation as required. Implementation of the Plan contributes to the overall sustainability of training areas as described in the INRMP. The EA will support individual Records of Environmental Consideration for future actions relevant to the Plan, provided the proposed actions do not cross the threshold of significance defined in both the INRMP and Plan.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 Proposed Action

The proposed action implements the Plan for FY07-11. This action would support the Army's underlying need to train Soldiers in a realistic setting that is in compliance with environmental regulations and policies. The majority of work will be within the Western Training Area of Fort Hood (Figure 2). A summary of Fort Hood's ITAM components is presented in the following sections.

The INRMP is a "living" document that will be modified (adaptively managed) over time. The proposed action focuses on a five-year planning period, which is consistent with the timeframe for the management objectives described in the INRMP. Additional environmental analyses may be required as new management objectives are developed over the long term (beyond five years).

2.1.1 Range and Training Land Assessment (RTLA)

RTLA will assist LRAM in implementing a monitoring program for all new LRAM sites. This program will consist of baseline sampling before a site is established and then periodic sampling after implementation to monitor the success of the site. Parameters measured and monitored include percentage cover of shrubs, qualitative estimates including wind and water erosion, and seedling recruitment. By monitoring site success, the LRAM component will gain a better understanding of which rehabilitation methods are most effective and apply that knowledge to new sites.

FY07: RTLA will continue to identify and catalogue sites during plot monitoring activities. LRAM will monitor the sites for two years.

FY08-11: RTLA continues to identify and catalogue sites discovered during plot monitoring.

2.1.2 Geographic Information Systems (GIS)

The objective of GIS support is to maximize the capability of ranges and training areas by providing the decision-makers accurate, up-to-date spatial information and visualization tools to plan, develop, and implement new and innovative training.

Process

- Maintain and update the training land GIS
- Provide specialized maps and digital data upon request
- Provide an updated Training Map to all Soldiers
- Provide GIS support to the Range Facility Management Support System
- Provide GIS support to the automated Surface Danger Zone program
- Provide GIS support to Training Division and other installation staff
- Contract aerial photography collection of Fort Hood every fifth year
- Contract Light Detection and Ranging (LIDAR) data annually

Execution Plan

All GIS hardware/software will be updated as new technologies become available and as systems need replacement. Reprinting of the Fort Hood Training Map will be contracted out. Revised printing of the Training Map will be made when sufficient changes to Fort Hood spatial data change occur. Aerial photography and LIDAR data collection will be contracted out according to schedule.

2.1.3 Training Range Integration (TRI)

The TRI program uses various forums to plan, coordinate, integrate, and execute priority training and land repair activities to balance needs and requirements. The forums require active participation by trainers, environmental agencies, and land management agencies. TRI actions are involved with a variety of activities, including, but not limited to:

- Long Range Training Calendar
- Installation Sustainment Program
- RTLP
- INRMP

2.1.4 Land Rehabilitation and Maintenance (LRAM)

LRAM represents over 90% of the ITAM budgetary requirements. Table 3 in Appendix B lists the LRAM components.

The Out Area Program began in FY00. It is a system that defers severely damaged areas from training and grazing for one year to allow for restoration work to precede unheeded, vegetation recovery, and establishment of new vegetation. The Out Area Program for FY07-11 is summarized in Table 4.

Cultural Site Protection in Maneuver Corridor (CAP)

A practical method of protecting historic properties within the maneuver corridors is to place a cap, or cover, of hard material over the areas that are subject to traffic. This is being accomplished by first covering the area to be capped with a geo-textile material, then placing a 12- to 16-inch layer of hard limestone (usually 4" x 9" stones) over it. The geo-textile provides a permeable barrier allowing water into the soil while keeping the rock from working into the site, and prevents the soil from piping up into and through the rock.

Although CAP placements are the preferred method of protection, barricading historic property boundaries is an option to deter or prevent maneuver traffic. This application is viable when maneuver traffic can be routed in such a manner to avoid an historic property with little or no affect to training.

Sustainable Management Objective

To protect the cultural resources while allowing training activities to continue.

Process

- Cultural Resources identifies sites to be protected within training lanes
- Ground truth tests to determine extent of the site needing protection
- Coordination through Fort Hood Cultural Resources with Texas State Historic Preservation Office
- Prepare, award, and supervise contract to ensure compliance

Execution Plan

CAP projects will coincide with the Out Area Program. Other cultural resource sites may be capped on an as-needed basis. Two sites are scheduled to be capped in each FY for a total of 10 sites protected.

Critical Area Treatment (CAT)

CAT is a combination of best management practices (BMPs) required at equal measure to ensure serviceability of the landscape. This combination of conservation practices is required on severely degraded areas and includes the following:

1. Maneuver Access Structures (MAS) – MAS are check dams constructed of rock. Excavations are made to key the rock into each bank. The rock is sized according to the drainage area and the velocity of runoff water expected. They are constructed in a shape of a weir (dam used to divert flow) to allow the water down the center of the original gully. The MAS are placed in a ladder or stair-step arrangement. Each MAS is aligned as much as possible with the traffic patterns to encourage less turning.

2. Sub-soiling (SUB) loosens severely compacted soil profiles to allow water and air into the soil. SUB encourages plant growth and builds organic matter content to improve the health of the soil and protect it from erosion. This is accomplished with a D7 crawler tractor penetrating up to a depth of 24 inches.

3. Mulching (MLC) occurs in areas where the topsoil or 'A' Horizon is severely eroded and is only capable of supporting limited plant growth. The mulch includes tree and shrub trimmings, scrap lumber, wooden crates, and pallets. The mulch is spread over areas to a depth of 4-6 inches and is allowed to stay in place as protection from rainfall or incorporated into the soil during training activities.

4. Vegetation Establishment (VEG) seeds areas that do not have sufficient seed source to recover naturally. This is accomplished either during SUB or as a separate operation. A mixture of native and alien species is used. The addition of compost is being used in areas where it is warranted by adverse soil conditions.

5. Rest for natural recovery.

These practices are implemented in areas that require deferment from training and cattle grazing to allow vegetation to become established.

Sustainable Management Objective

CAT is designed to improve areas for training, protect them from further damage, and prolong their useful lifespan.

Process

- Identify areas for rehabilitation
- Ground truth and map gullies from aerial photographs
- Use Global Positioning System (GPS) data for MAS and develops layer for SUB, MLC, and VEG
- Coordinate with DPW Environmental
- Develop, award, and supervise contract for compliance

Execution Plan

Priority work will be within the maneuver area and use the Out Area Program as a focus for treatment opportunities. Work in other areas will be coordinated with training as needed.

Combat Trail Maintenance (CBT)

Restoration of the trails to serviceable condition may require a complete rebuild in some cases. This includes providing a stable sub-base, proper drainage and stable base material. The sub-base must be a minimum of six inches thick, have a low organic content, and be compacted to 95% density. In areas of soils with

high clay content, the sub-base will be stabilized with lime or have an additional six inches of base applied. Site preparation will include grading to provide adequate drainage so water will not pond in bar ditches. Hardened low water stream crossings or adequate culverts will be provided at drainage points. The base material will be 10 inches thick and compacted to 100% density.

Hazardous trail conditions have resulted in numerous cases of vehicles being damaged and Soldiers being injured, some seriously. Improvement of trails will provide trainers better access to training areas and will cause less stress on equipment and personnel. This work will be accomplished by a combination of Fort Hood DPW in-house staff and contract support.

Sustainable Management Objective

The CBT program will provide trainers with adequate, clean, and safe access to all training areas. CBT will save time, reduce vehicle repair costs and related injuries, and increase training time. The program will aid in producing combat ready forces.

Process

- Identify trails for improvement with priority in the Training Out Areas
- GPS route, develop GIS layer, calculate length, and cost estimates
- Coordinate with DPW Environmental
- Prepare and supervise contract

Execution Plan

The CBT project will coincide with the Out Area Program, but may include other areas as funds permit.

Erosion Control Structure (ECS)

High soil erosion rates are usually addressed through the use of feasible conservation practices. Areas experiencing high traffic and lacking satisfactory vegetative cover do not benefit from these methods. The maneuver corridors are examples of these areas. Gullies normally form when watershed cover is unsatisfactory. Maneuver trails traverse areas with natural drainage patterns and steep slopes. In areas with low ground cover, maneuver traffic across channels no doubt exacerbates the situation. The gullies produce high amounts of sediment that is transported off-site, cause a loss of training time, and reduce the ability to train effectively. ITAM will restore the areas to a more suitable training condition and protect the training lands from further deterioration. An ECS network is being constructed at key sites on the perimeter of training lanes and in conjunction with CBT projects.

Sustainable Management Objective

ECS structures capture the storm water runoff, retain most of the sediment, and reduce the stream gradient and consequently its sediment carrying capacity.

The combination of creating small retention structures and reduced stream gradient lowers runoff velocity. These combined effects reduce downstream erosion and sedimentation. In addition, an ECS provides a safe access across drainages and reduces erosion at the stream approaches. The ECS network will be an integral part of the total effort to improve the training lands to reduce soil erosion and allow training to be conducted in a safe and more desirable environment.

Process

- Identify and GPS sites requiring structures
- Conduct detailed engineering survey
- Coordinate with DPW Environmental
- Design structure
- Prepare specifications, solicitation, and quality assurance for contract

Execution Plan

The ECS project has been ongoing for several years. Four additional ECS are planned and will be constructed as funding permits.

Firebreak Trail Maintenance (FBM)

A comprehensive discussion of the FBM program may be found in Tab P (pages P-1 and P-2) to Appendix A of the Fort Hood INRMP (III Corps and Fort Hood, 2006).

Hillside Access Trails (HAT)

Selected HAT sites are being improved and hardened. HATs provide a safe, semi-permanent access trail and significantly reduce erosion rates. The HAT project improves training and provides access throughout the maneuver areas.

Sustainable Management Objective

The Hillside Access Trail (HAT) improvement program will help to maximize access to training areas and enable units to train effectively.

Process

- Identify sites to improve and sites to block
- GPS route and enter into the GIS
- Coordinate with DPW Environmental
- Develop and supervise contract for compliance

Execution Plan

The HAT improvement program is planned to coincide with the Out Area Program and will compliment the CBT project as much as possible. A total of 46 HATs are planned during FY07 – 11.

Land Sustainment Maintenance (LSM)

Routine infrastructure maintenance of training lands must occur to prevent small problems from becoming large problems, which are obstacles to training and more costly to repair. This can include a wide range of maintenance common to heavy use of lands. This maintenance may include, but not limited to:

- Maintenance and repair of trails
- Repair of hillside access trails
- Repair of stream crossings
- Smoothing rutted areas, area shaping
- Cleaning drains
- Maintenance of dams
 - Remove brush
 - Remove trash from debris guard
 - Repair top if used as a roadway
 - Open outlet drainage ditches
 - Block emergency spillways from traffic

Sustainable Management Objectives

The land sustainment maintenance program would accomplish objectives as follows:

- Correct small damages or problems before they became costly repair problems
- Help to maintain training lands in C1 or C2 condition
- Maintain healthy training land conditions

Process

- Identify maintenance work needed by visual observation
- Schedule routine maintenance of trails, crossings and hats and other problems will be identified during their work
- Obtain schedule of training activities
- Initiate a training damage report
- Use info from report to identify problem areas
- Purchase of materials

Execution Plan

Maintenance of training lands is scheduled routinely.

Pipeline Crossing (PLC)

Three major pipelines cross the maneuver training lands of Fort Hood:

- A high-pressure oil line that lies in an east/west direction. It enters the installation at grid coordinates PV104678 and exits at PV353581.

- A high-pressure gas line also lying in an east/west direction. It crosses three parts of the training lands. It enters from the east at PV389423 and exits at PV355428; enters at PV341430 and exits at PV333431; enters at PV306437 and exits at PV283439.
- A 54-inch diameter potable water supply line also lies in an east/west direction. It enters the installation at PV396446 and exits into the Main Cantonment at PV233465.

The pipelines are physically identified with signs and an earthen mound. Each line originally had approved crossing sites, many of which have eroded and are no longer safe for maneuver vehicles to cross. The pipelines are also being crossed at non-approved sites, causing the earthen cover to be eroded.

A project to correct this problem by providing an adequate number of pipeline crossing sites has been proposed. Eight crossing sites have been repaired to date, and additional sites are planned on each pipeline. The new approved crossing sites will be hardened with rock and flex base materials. Eroded areas of the lines will be filled, smoothed, and blocked from traffic with berms or large stones.

Sustainable Management Objectives

The PLC program will accomplish the following:

- Protect the integrity of the pipelines
- Provide safe sites where trainers can cross the lines
- Reduce soil erosion rates to more acceptable levels

Process

- Survey from aerial photographs and observations for sites to improve
- Determine priority of sites to be repaired for safety concerns
- Coordinate with DPW Environmental
- Locate each site with GPS and enter into GIS
- Determine type of material needed by traffic usage
- Prepare, award, and supervise contract to ensure compliance

Execution Plan

A total of 20 improved crossing sites are planned from FY07–11.

Staging Area Treatment (SAT)

Staging areas tend to be used for repetitive operations and are usually adjacent to main roadways. Heavy use creates bare, eroded soil and produces large amounts of silt. These rough soil conditions present difficulties for personnel and equipment.

The SAT program will harden these areas and provide access from hardened roadways to address this problem. Several SATs have been constructed to date and others are planned. SATs are hardened with 18 inches of compacted road base material. The standard size is 200 feet by 400 feet with access roads on either end of the 400-foot length to provide entrance and exit points for equipment.

Sustainable Management Objectives

This program will accomplish the following objectives:

- Minimize soil erosion and sediment production from these areas
- Provide a clean, safe environment for training to be conducted

Process

- Identify sites by historical usage
- Coordinate sites with trainers
- Coordinate with DPW Environmental
- GPS sites and enter into the GIS
- Prepare, award, and supervise contract for compliance

Execution Plan

- FY07 – Improve 6 acres of staging area
- FY08 – Improve 8 acres of staging area
- FY09 – Improve 4 acres of staging area
- FY10 – Improve 10 acres of staging area
- FY11 – Improve 4 acres of staging area

Training Damage Repair (TDR)

Damage from training activities can and does occur at any place within the maneuver training lands. Damage can consist of, but is not limited to, the following:

- Eroded fighting positions
- Gullies in trails
- Stream crossing degradation
- Disturbed vegetation and soil
- Ruts

Damaged fighting positions are a safety hazard and need to be filled, smoothed, and seeded. Damaged trails must be repaired before they become eroded and hazardous. Hardened stream crossings and hillside access trails should be repaired before further damage and more costly repairs are required. Disturbed and rutted soil needs to be smoothed and seeded to prevent further erosion. All-weather roadways are the responsibility of other entities on the installation, but these must be repaired as well.

Sustainable Management Objectives

The TDR objective is to sustain training lands as viable areas in order to meet current and future needs of the military.

Process

Obtain information from several sources as follows:

- Schedules of training activities when possible
- Information from a Training Damage Report when implemented
- Visual observations by interested parties during routine work

Execution Plan

The TDR project must be carried out continuously following training exercises. An immediate repair can prevent more costly repairs later. The acres planned for this activity by FY are as follows:

- FY07 – 1,500 acres
- FY08 – 2,800 acres
- FY09 – 1,100 acres
- FY10 – 1,625 acres
- FY11 – 1,100 acres

The amount of training area repaired through TDR projects is 8,125 acres. This would eliminate the backlog of pending TDR actions.

Woody Species Management (WSM)

A comprehensive discussion of the WSM program may be found in Tabs O (“Fort Hood Juniper Management Program”), Q (“Oak Wilt Management”), and R (“Mesquite Management”) to Appendix A of the Fort Hood INRMP.

Vegetation Establishment (VEG)

Military training, particularly mechanized training is inherently destructive to the vegetation and soil by compaction, denuding, and rutting. Without an adequate cover of grasses and forbs, erosion by water will result in poor range health and eroded training lands. This results in the Army not being able to train to standard. RTLA inventories indicate an excess of 15,000 acres of maneuver training lanes that were in a readiness condition C3, or below standard condition. Approximately one-half of these acres have been treated with a series of practices to date. These are repaired as indicated in the CAT section above. Vegetation establishment is a part of the process and accomplished in other areas as needed. Native and alien species are used to complement the site conditions. Compost is being used where soil conditions warrant.

Sustainable Management Objectives

The objective of this program is to establish a desirable vegetative cover to mitigate erosion rates to acceptable levels:

- where no cover exists
- where training activities denude areas, and
- where conditions are such that natural recovery is not possible

By accomplishing this, training lands will be able to support the desired level of training for a much longer period of time.

Process

Identify areas needing seeding and establishment by:

- RTLA surveys and field observations
- Maneuver Damage Reports from units (If available)
- Coordinate with DPW Environmental
- Monitor contract for compliance

Execution Plan

Each FY has 2,500 acres programmed to be used where needed.

Stream Crossings (XNG)

Maneuver training is affected by an inadequate number and type of stream crossings. Many old crossing sites are steep, eroded, and pose hazards to vehicles and personnel. Hardened stream crossings allow tactical vehicles to safely cross stream channels and minimize soil erosion, preventing turbidity and sediment transportation off-site. Unstable crossings impact training by posing a safety hazard to tactical vehicles crossing the stream, as well as degrading water quality and local stream ecology.

Flow velocities and specific site conditions determine the prescribed treatment for low water crossings. Some crossing sites have a natural hard limestone channel bottom and only the approaches require hardening. The approaches are cut to a uniform slope which can be traversed safely. Hardening is accomplished over a prepared sub base with rock grouted with fiber concrete, cable concrete, or reinforced concrete. The approaches on small streams where light traffic is anticipated are only hardened with rock. Stream channels without natural limestone are hardened with reinforced concrete.

Sustainable Management Objective

The low water construction program will help maximize the availability of training areas by improving access. Low water crossings not only increase training value of an area but also help minimize the environmental impacts of training on the installation.

Process

- Identify low water crossing sites
- GPS site location and record grid coordinates
- Identify type of traffic utilizing crossing site (tracked or wheeled vehicles)
- Determine appropriate material for constructing the site
- Coordinate with DPW Environmental
- Submit necessary information to obtain environmental clearances
- Assess current condition of site and determine the extent of work required
- Coordinate with Range Control to close training area until construction completion or provide alternate route across training area
- Coordinate for contract necessary to perform work

Execution Plan

Hardening stream crossings is one of the most important practices available to reduce the erosion that deposits sediment directly into streams. The following XNG projects are planned by FY:

- FY07 – 21 crossings
- FY08 – 15 crossings
- FY09 – 23 crossings
- FY10 – 30 crossings
- FY11 – 22 crossings

Most XNG projects will be constructed within the Out Area Program, but some will be located at other priority areas.

2.1.5 Sustainable Range Awareness (SRA)

The sustainable range awareness program will help sustain training areas by assisting in environmental management and Soldier/leader education. SRA teaches Soldiers the elements of environmental management to include conservation, pollution prevention, compliance, and restoration, as well as how to conduct training and minimize damage to the training lands. Detailed briefings are available to new and current unit commanders. Trainers are encouraged to report land damage and areas that have the potential to impact future training events.

Process

- Identify training needs
- Develop programs to fill those needs
- Identify training material needs
- Develop cost efficient methods of procurement
- Develop an effective and efficient replenishment system

Execution

FY07: SRA priorities include:

- Coordinate the Integrated Environmental Education Program
- Update the Fort Hood ITAM SRA videos and Leader Field Cards
- Develop and produce SRA videos supporting training and readiness
- Publish SRA #8, *Fort Hood Tank Trails and Crossings*
- Coordinate newcomers' viewing of SRA #1; *Preserving Fort Hood*
- Continue to submit articles to the *Bridge* (Army ITAM quarterly newsletter)
- Update the Fort Hood Training Map to reflect changes to training areas
- Support the DA ITAM Workshop with oral and poster presentations.

FY08-11: Future and on-going priorities include:

- Continue to coordinate the Integrated Environmental Education Program
- Continue to seek out opportunities to submit articles to the *Bridge*
- Increase land stewardship education and training
- Continue to make trainers part of the training land sustainment solution
- Continue to provide time, resources, and guidance to leaders and commanders to facilitate their training and sustain Fort Hood's training lands

2.2 Alternatives to the Proposed Action

Alternatives considered for the management of Fort Hood's valued environmental components (VECs) are evaluated within Section 4 of this EA. The selection of management measures for the Plan involved a screening analysis of resource-specific management alternatives. The screening analysis involved the use of accepted criteria, standards, and guidelines when available, as well as best professional judgment, to identify management practices for achieving Fort Hood's natural resource management objectives. The outcome of the screening analysis led to the development of the proposed action. An infinite number of permutations of specific management alternatives described in the Plan are possible.

Consistent with the intent of NEPA, this process focused on considering a reasonable range of resource-specific management alternatives and from those, developing an approach that could be implemented as a whole in the foreseeable future. It then omitted from detailed analysis management alternatives deemed to be infeasible.

Application of this screening process in developing the proposed action (implementation of the management measures contained in the Plan) eliminated the need to define and evaluate hypothetical alternatives to plan implementation. As a result, this document formally addresses three alternatives, the proposed action (implementation of the Plan) and the no action alternative described below.

2.2.1 No Action Alternative

Current management measures as stated in the INRMP would remain in effect, and existing conditions would continue as the status quo. Fort Hood would not implement the added increment of management measures set forth in the Plan. This EA refers to the continuation of baseline or existing conditions of the affected environment, without implementation of the proposed action, as the no action alternative. Fort Hood would undertake only those training area restorative projects described in the INRMP. The Council on Environmental Quality (CEQ) regulations prescribe inclusion of a no action alternative, which serves as a benchmark against which proposed federal actions can be evaluated.

Although this alternative would result in generally positive impacts to the environment, the level of training area management would be significantly less than compared to the preferred alternative. The no action alternative is expected to have generally positive benefits to the environment based on the Finding of No Significant Impact and Environmental Assessment prepared for the INRMP.

2.2.2 Alternative 1

Based on previous amounts of funding received in the past, it is unlikely that the ITAM program would be fully funded for each FY of the Plan. This alternative considers potential impacts of partially implementing the Plan as a supplement to the INRMP. The level of funding received is a major factor determining the amount of work the ITAM program. Due to funding priority, all ITAM components except LRAM would be expected to be fully implemented. Table 5 in Appendix B lists proposed LRAM actions based on 50% funding.

This alternative would result in positive impacts to the environment. It would improve training area management to a greater degree than the no action alternative and partially complement the INRMP management actions.

2.2.3 Preferred Alternative

The preferred alternative fully implements the Plan for FY07-11. All ITAM components would be funded. General rehabilitation of these TAs would include the following actions:

- Repairing combat trails
- Harden stream crossings, hillside access trails and staging areas
- Construct maneuver access structures (MAS) in gully networks
- Subsoil compacted soils
- Seed/establish desired vegetation

The preferred alternative would provide the greatest benefits to the environment and fully complement the INRMP management actions.

2.2.4 Alternatives Not Considered in Detail

INRMP Not Implemented: If the INRMP were not implemented, the Plan would not be implemented. Fort Hood would continue to use the 2000 INRMP as guidance. This earlier version of the INRMP did not contain important provisions such as a water management plan and therefore required an update. This alternative would not fully support training activities.

No Mitigation Treatment (LRAM): The ongoing ITAM work mitigates training impacts that would cumulatively cause violations of environmental laws such as the Clean Water Act. A no treatment alternative would fail to meet legal requirements and was therefore not considered to be a viable consideration that would meet the purpose and need to support training.

No Training: Controlling resource impacts could result from halting all training or that which produced impacts within the extant resource capability for recover. This would fail to train Army forces to standard and therefore fails to meet the purpose and need of the installation and this assessment.

3.0 AFFECTED ENVIRONMENT

Maneuver training areas are located west, east, and southwest of the Live Fire Areas (Figure 1). Maneuver training areas constitute 53,300 hectares or 61 percent of the entire installation. The West Range Maneuver Training Areas (Land Groups 4–6) provide excellent training opportunities for large armored and mechanized infantry forces. The training area averages 7–10 kilometers (km) east to west and 30 km north to south. The area features a wide variety of terrain and vegetation characteristics that greatly enhance cross country, combined arms maneuver. Because of its large, contiguous size, this is the only maneuver area on Fort Hood capable of supporting brigade-level operations.

The Western Training Area, comprised of LGs four, five, and six, is the primary area of potential effect for the proposed action and alternatives. Although the Western Training Area is adjacent to the western boundary of the installation, no off-post migration resulting from implementation of the proposed action or alternatives is expected.

This is a “focused EA,” consistent with guidance issued by CEQ in 40 CFR 1501.7(a) (3). In considering environmental and socioeconomic resources and conditions, the Army has determined that certain VECs would not be affected by either the proposed action or alternatives and, therefore, do not need to be evaluated in detail. The following VECs would not be measurably affected by the proposed action or alternatives.

- Air Quality
- Geology
- Utilities
- Solid Waste Management
- Facilities
- Airspace Resources
- Noise
- Hazardous and Toxic Materials
- Socioeconomics
- Environmental Justice

Air Quality – No effects would be expected. The primary concern regarding air quality and potential environmental effects pertains to increases in pollutant emissions above National Ambient Air Quality Standards and other federal, state, and local limits; and impacts on existing air permits. Potential effects on existing pollutant emissions are precluded by the fact that the proposed action does not involve any activities that would contribute to changes in existing air quality. Therefore, there would be no effects regarding air quality as a result of implementing the proposed action.

Geology – No effects would be expected. The proposed action is not expected to require excavations of a magnitude that could affect the geology of the Western Training Area. No geological formations of significance have been identified in the area of potential effect.

Utilities – No effects would be expected. The primary concerns regarding impacts to the utility infrastructure of Fort Hood pertain to damage resulting in interruption of service. The utility systems in the maneuver areas have been thoroughly identified and delineated. Before any excavation or other work that could affect utilities takes place, the work is cleared through DPW utilities and underground utilities that could be affected are identified.

Solid Waste Management – No effects would be expected. The proposed action will not generate significant amounts of solid waste. Disposal of refuse in the Fort Hood Solid Waste Management Unit (landfill) is not expected. Any surface soil that is excavated is expected to be used onsite for restorative purposes.

Facilities – No effects would be expected. The area of potential effect is the Western Training Area. The proposed action would not take place in the Main Cantonment Area, Belton Lake Outdoor Recreational Area, North Fort Hood, or West Fort Hood. All facilities would continue to be maintained and operated in accordance with required permits and capabilities. Under the proposed action, the demand for utilities and roads would not be expected to increase and therefore, there would be no adverse impacts to existing facilities.

Airspace Resources – No effects would be expected. The primary concern regarding airspace resources pertains to disruption of aircraft resource training. Potential impacts to airspace resources are precluded by the fact that all construction required to implement the proposed action would take place on the ground and would not involve any aerial resources. The proposed Digital Air to Ground Integrated Range (DAGIR) would be located in the northern training areas of Fort Hood, adjacent to the Western Training Area. However, no disruption of DAGIR construction or operation is anticipated as a result of the proposed action. Operations at either Hood Army Airfield or Robert Gray Army Airfield/Killeen-Fort Hood Regional Airport are not expected to be affected by the proposed action.

Noise – No effects would be expected. The primary concern regarding noise and potential environmental effects pertains to increases in sound levels, actions that produce noise levels above acceptable land use compatibility guidelines, and changes in public acceptance (i.e., noise complaints). However, potential effects are precluded by the fact that the proposed action does not involve any activities that would exceed current noise levels of the Western Training Area. Therefore, there would be no effects regarding noise levels or sound quality as a result of implementing the proposed action.

Hazardous and Toxic Materials – No effects would be expected. All hazardous and toxic materials would continue to be handled in accordance with federal laws and Army regulations, including the Resource Conservation and Recovery Act (RCRA), the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), the Toxic Substances Control Act (TSCA), and AR 200-1. Thus, no adverse effects

regarding the generation of hazardous and toxic materials would be expected under the proposed action.

Socioeconomics – No effects would be expected. The proposed action would not involve any activities that would contribute to changes in population, housing, industry earnings and employment, or personal income.

Environmental Justice – No effects would be expected. Implementation of the proposed action would not create any advantage or disadvantage for any group or individual and would not create disproportionately high or adverse human health or environmental effects on children or minority or low-income populations at or surrounding Fort Hood.

3.1 Training Resources

3.1.1 Western Training Area

The Western Training Areas (TAs 40 - 66) are the primary heavy maneuver training areas on the installation. Extreme use of land produces bare soil devoid of vegetative cover. Severe rainfall or flooding events and a lack of adequate vegetative cover are the primary causes of erosion at Fort Hood. Erosion starts with sheet and rill erosion, but grows into larger rills and into gullies. Approximately 134 miles of gullies one to three feet deep and 136 miles of gullies three to six feet deep have been estimated within the heavily-used training lanes. The 270 miles of gullies affect training on 24,000 acres. This network of gullies causes severe hindrance to training as well as a safety concern to personnel and equipment. When trying to maneuver across the land, several impassable gullies are encountered.

3.1.2 Combat Trails

There are 400 miles of Combat Trails identified on Fort Hood of which 364 miles are not fully serviceable. These trails are unserviceable partly due to the lack of satisfactory construction material when originally built, but primarily due to the lack of proper maintenance. Once the base has eroded, the supporting sub-base rapidly degrades. With very limited or no maintenance, the trails soon develop large potholes. This causes traffic to divert to alternate routes and the trails widen. In some cases, the trails expand to a width of 100 to 200 ft. This additional area lacks vegetation and is constantly disturbed by tracked and wheeled vehicles, producing high erosion rates. The disturbed areas produce 60% of the sediment transported by runoff water in the maneuver training areas. Natural Resources Conservation Service (NRCS) sediment and erosion monitoring surveys indicate that for every mile of improved trail, approximately 40 acres of adjacent training lands can be protected.

3.1.3 Live Fire Area

The live fire area encompasses approximately 62,000 acres in the center of Fort Hood and contains a large acreage of non-core endangered species habitat. Most fires on Fort Hood are started by training activities within this area. Without control and containment, endangered species habitat and adjacent lands are threatened. Wildfires can cross the installation boundary onto private lands.

3.1.4 Hillside Access Trails

Hillside slopes have a 20 to 45 percent gradient. Tracked vehicles are able to access hilltops until water erodes away the soil, leaving a vertical rock ledge of four to ten feet at the top of the slope. When paths become inaccessible, others are created. As a result, hundreds of abandoned trails exist on the installation today. These trails are not only sources of erosion and sediment production, but are also a safety hazard. Tanks and other vehicles have overturned and seriously injured Soldiers attempting to traverse inaccessible trails.

3.2 Physical Resources

3.2.1 Topography

The topography of the area is characterized by rolling prairies with steep breaks to major creeks. Narrow floodplains occur along major drainage ways. Approximately five percent of the installation can be classified as alluvial floodplain. Most of the area north of Highway 190 drains eastward while drainage south of Highway 190 is generally south and east. Slopes rise rapidly from valley floors to tops of old plateau remnants. The elevation ranges from 80 to 160 feet ASL.

Slopes vary from three percent in the floodplains to as much as 45 percent on the sides of the valley walls. Good surface drainage and shallow rocky clay soils allow almost yearlong trafficability of the area. Low bushy hills with wooded ravines provide a challenging maneuver area in some locations with abundant concealing cover.

3.2.2 Soils

Fort Hood is located on a deeply dissected limestone plain underlain by hard limestone on higher ridges with softer limestone and marl clay on rolling hills and plateaus. Several deep valleys are present through which streams flow generally southeast in narrow strips of alluvial bottomland. Many steep slopes have little topsoil remaining.

Complete surface series descriptions and locations are available in NRCS-published soil surveys of Bell and Coryell Counties and in the INRMP. Generally,

the soils in areas that are relatively level are dark colored (black to brown) clays with deep surfaces, while soils in areas that are rolling to steep are lighter in color, with shallow surfaces. Calcareous soils have developed under a native grass cover.

Small sections of alluvial floodplain along Cowhouse Creek are predominantly Bosque clay loams and Frio silty clays and identified as prime or unique farmland soils. Prime or unique farmland soils are not prohibited for uses consistent with the installation's training mission, but warrant continued sound resource management practices.

3.3 Water Resources

3.3.1 Surface Water

There are 500 acres of lakes and ponds, 55 miles of rivers and permanent streams and 136 miles of shoreline access to Belton Lake on Fort Hood. All water impoundments are manmade for purposes such as flood control, sediment retention, recreation, water supply, wildlife and livestock water, and fish habitat. Additional impoundments are being constructed for the primary purpose of storing sediment from the training areas.

Fort Hood is divided into two major watersheds with numerous sub-watersheds. The major watersheds are the Leon River (including Belton Lake) and the Lampasas River. The Leon River drains the majority of the installation including all maneuver training lands. Shoal Creek, Turnover Creek, Henson Creek, and several unnamed streams in TAs 60, 61, 62, 63, 64, and 65 drain into the Leon River north of Belton Lake. Water quality is a major concern due to the sediment loads carried by these streams. Cowhouse Creek and its sub-watersheds drain directly into Belton Lake. North and South Nolan Creeks drain into the Leon River below Belton Lake.

A small portion of the southern end of Fort Hood, used primarily for dismounted training, drains into the Lampasas River. The river empties into Stillhouse Hollow reservoir. Only dismounted training, which has a smaller impact to the environment than vehicular training, occurs in this area.

Jurisdictional Waters of the US

Jurisdictional waters including wetlands exist across the installation. These resources range from small emergent wetlands associated with ephemeral streams to large forested wetland complexes adjacent to perennial channels. Currently efforts are underway to delineate all water features, both jurisdictional and non-jurisdictional, within potential project areas on the installation. However, the amount of funding currently allocated is only adequate to delineate relatively small portions of the installation, with the focus being within the live fire areas

and adjacent to the cantonment areas. A comprehensive discussion of wetlands may be found in Section 2.1.7 of the Fort Hood INRMP (INRMP, 2006).

3.3.2 Groundwater

The Trinity Aquifer is the major aquifer underlying Fort Hood. Pre-Cretaceous rocks, the Travis Peak formation, the Glen Rose formation, the Paluxy formation, and the Walnut Clay formation are the primary stratigraphic units that occur in the Fort Hood area. The Walnut Clay formation occurs at the surface of the area, while the Paluxy and Glen Rose formations are exposed only along the channels of the Leon River and its tributaries (INRMP, 2006).

The Travis Peak formation is the deepest and hydrologically most important stratigraphic unit in the Fort Hood region. This formation does not outcrop at the surface in Fort Hood. No major groundwater resources outside the installation are affected by recharge from within Fort Hood, and recharge that occurs within the installation affects only the small, shallow groundwater supplies that remain on the installation (INRMP, 2006).

Potentially sensitive groundwater areas of the Fort Hood region are the outcrop areas of the Paluxy formation and recent alluvial materials within and adjacent to Cowhouse Creek, Henson Creek, and the Leon River, as well as the karst or cave systems found throughout the installation. The aquifers recharged by these areas are relatively shallow, and therefore they could be affected by hazardous material spills and seepage. However, these waters are rarely used (INRMP, 2006). Surface water, not groundwater, is the primary water supply for Fort Hood.

Currently, there is no known usage of groundwater at Fort Hood. Groundwater studies have been conducted at Fort Hood, and the results do not show any critical issues directly attributed to the installation. A detailed discussion of these studies is provided in Section 2.1.6.3 of the INRMP (INRMP, 2006).

3.4 Natural Resources

3.4.1 Flora

Fort Hood is at the southern extension of the Cross Timbers and Prairies region and northeastern corner of Edwards Plateau vegetative associations. Two broad community types are on post: savannah and woodland. Savannahs have less than 25% woody canopy cover, and are most common in the Western Maneuver Area and the live fire zone. Open areas are comprised mainly of the grasses found in savannahs, while woody species are similar to those found in woodlands. Woodlands are classified by three types: coniferous tree and shrub, deciduous tree and shrub, and mixed coniferous and deciduous tree and shrub. Tables 6 and 7 list common species in savannah and woodland communities. A complete discussion of common plant types is in Section 2.1.4 of the Fort Hood INRMP.

The original climax trees of Fort Hood were oaks, juniper, and elm. Large areas of woodland and areas of scattered Live Oak gave rise to early references to a savannah. Range fires, unhindered by highways or cultivated fields, helped confine woody vegetation to stream beds and hills or rocky ridges where there was not sufficient grass accumulation to sustain a hot enough fire to kill trees and bushes. *Juniperus ashei*, locally known as Ashe juniper or more commonly “cedar”, continually encroached downhill and was pushed back repeatedly by fire, creating a juniper halo effect around the rock hilltops. The major woody plants include juniper, mesquite, oak, and elm.

Grazing reduces fine fuels available to carry fires. Maneuver training further reduces available fuel for wildfires to control woody species. The woody species also reduce grasses as a defense mechanism. The concomitant effect is reduced ground cover and artificially reduced open terrain and increased woody vegetation.

Prior farming practices, military training, and livestock grazing have disrupted grassland communities. Robust perennial species such as little bluestem, yellow Indiangrass, and big bluestem have been eliminated across much of Fort Hood. Successional species are adapted to tolerate frequent disturbance (e.g. non-native bluestems, dropseeds, Texas wintergrass, and annual forbs). The percentages of bare ground and erosion rates are high where heavy training and cattle grazing occur. A resulting shift in plant composition from a tallgrass community to a midgrass, shortgrass, annual forb, and woody complex has led to reduced fine fuel loads, contributing to fire suppression. Fire suppression can lead to the encroachment of Ashe juniper and other woody species into areas that were formerly grassland or savannah-type systems.

Ashe Juniper is a native plant. However, it was historically confined to steep slopes and ridges where natural occurring fires did not reach. Following European settlement, fires were slowed or stopped. This plant has since encroached onto prairies and oak savannahs, and replaced several more desirable woody and grass species. The encroachment of *J. ashei* is a concern for ecosystem health as well as to military training. Stands can block the line of sight for Training Aid Devices Simulator and Simulations, (TADSS), the Army's primary non-live fire training systems.

Honey Mesquite (*Prosopis glandulosa*) is a woody species that becomes a problem to training as it encroaches in maneuver areas. This plant can impede sighting systems and its hard thorns are hazardous to the tires of wheeled vehicles and dismounted Soldiers. *P. glandulosa* is usually confined to deep clay and clay loam soils of bottomland and upland sites. The seeds are eaten by domestic livestock and wildlife, whose digestive tract scarifies (breaks down) the protective seed coat while the manure provides a medium for germination. Seedlings can invade open areas and create dense stands relatively quickly.

Honey mesquite matures in three to five years. An older plant may have taproots up to 40 feet deep and lateral roots up to 50 feet away from the main stem. The volume and distribution of the root system makes *P. glandulosa* able to withdraw water from soil at a much higher rate than grasses and forbs. A crown bud directly below the soil surface sprouts profusely when the top is removed, making it harder to control mechanically. Herbicides alone do not offer the best and most effective control unless the chemical control is combined with mechanical control. Herbicide control alone calls for large quantities of herbicide that will also kill non-target hardwoods, and may be incomplete unless treatments are repeated. Following a herbicide kill, the trees still have to be removed by fire or dozing. A mature plant has very woody, stiff thorns making movement through dense stands difficult. Approximately 12,000 acres of Fort Hood training lands have this plant to some degree, and half of the acreage is becoming very dense, making it unsuitable for some types of training.

3.4.2 Fauna

The faunal assemblages and guilds of Fort Hood are characteristic of those found on the Edwards Plateau and Lampasas Cut Plains regions. Comprehensive lists of fish, bird, cave-dwelling, and plant species found on the installation are available in the appendices to the INRMP. The various habitat types provide for wildlife communities characteristic of the Edwards Plateau and the Cross Timbers and Prairies areas.

3.5 Threatened and Endangered Species

Table 8 in Appendix A lists protected species, candidate species, and species of concern that occur or may occur on Fort Hood. Some species listed on that list do not have federal listing status, but have state listing status.

Whooping cranes are rare migrants through the Fort Hood corridor. Five observations of whooping cranes on the installation were documented in December 1986. They may fly over the installation during spring and fall migration, and may stop on Belton Lake. The bald eagle winters regularly on Belton Lake and the shoreline along the eastern border of Fort Hood. Eagles arrive during mid- to late-October, and depart generally around the end of March. Fort Hood restricts activities near roost sites when bald eagles are known to be in the area. The restricted activities consist of low level flight restrictions below 1,000 ft above ground level. The flight restriction is put in place when bald eagles are first observed, usually mid- to late October, and lifted when they are last observed around the end of March.

The golden-cheeked warbler (GCWA) nests in mixed oak juniper woodland. It prefers older stands with mature trees (40 years old or equal) and closed canopies. Recent monitoring efforts indicate the resident GCWA population size has increased significantly in the last decade. Threats to the GCWA include habitat destruction by urban development, brush clearing, loss of deciduous oaks to oak wilt, range wildfires, and nest parasitism from brown-headed cowbirds (*Molothrus ater*).

The black-capped vireo (BCVI) nests in an early successional deciduous scrub community. This habitat is generated as the result of various disturbances, including wildfire or mechanical removal of woody top growth. Good nesting habitat for the BCVI includes a wide diversity of hardwoods in a patchy, low-growing configuration with open, grassy spaces between patches of woody vegetation. The BCVI is threatened by cowbird parasitism, low reproductive success, habitat loss from poor grazing practices, fire suppression (that contributes to habitat succession), and urban development.

The US Fish and Wildlife Service (USFWS) issued its third Biological Opinion (BO) for Fort Hood in 2005. Under this BO, core habitat for the BCVI was removed from the acreage listed in Fort Hood's 2001 Endangered Species Management Plan. Further, core habitat for GCWA was reduced from 36,767 to 9,541 designated acres. There is currently no critical habitat as defined by the USFWS Fort Hood. Core habitat is not included in any WSM projects. Responsible and sound resource management should be conducted during WSM in training lands to balance maintenance and continued support of training, wildlife, and safety of personnel and equipment.

3.6 Cultural Resources

Numerous cultural resources and historic properties have been identified within maneuver training corridors. There are also some sites that may be eligible for the National Register of Historic Places pending further investigation and confirmation. Maneuver training can damage sites as units are not aware of site locations. The CAP component of LRAM is designed to protect the sites so training can be conducted without restrictions. Eventually, data recovery may be conducted at some of the sites for mitigation purposes when funds and time permit.

4.0 ENVIRONMENTAL CONSEQUENCES

The EA findings, summarized in Table 2, are consistent with the goals of the ITAM program to ensure the long-term sustainability of desired military training area conditions, to protect the ecosystems and their components from unacceptable damage or degradation; and to identify and restore degraded habitats. The no action alternative implements the INRMP without additional sustainable measures as defined in the Plan. Alternative 1 partially implements the Plan supplementing the INRMP. The preferred alternative, implementation of the Plan, would directly and positively affect the health and condition of training resources at Fort Hood. No significant adverse cumulative effects would be expected.

Table 2 – Summary of Potential Environmental Consequences

| VEC | Environmental Consequences | | |
|--------------------------------------|-------------------------------------|-----------------------------------|---|
| | No Action Alternative INRMP Only | Alternative 1 INRMP + 50% Plan | Preferred Alternative INMRP + Full Plan |
| Training Resources | Moderately Adverse | Moderately Beneficial | Highly Beneficial |
| Physical Resources | Moderately Beneficial | Beneficial | Highly Beneficial |
| Surface Water Resources | Moderately Beneficial | Moderately Beneficial | Moderately Beneficial |
| Groundwater Resources | No Effects | Moderately Beneficial | Moderately Beneficial |
| Natural Resources | No Effects | Beneficial | Highly Beneficial |
| Threatened and Endangered Species | No Effects | Beneficial | Highly Beneficial |
| Cultural Resources | Moderately Beneficial | Beneficial | Highly Beneficial |
| Cumulative Effects | Moderately Beneficial | Beneficial | Highly Beneficial |

4.1 Training Resources

Weapons systems with longer ranges require more land for larger training ranges and impact areas. Additional maneuver training land is also required for training combined arms formations to standards that operate over larger areas than previous training standards required. The reconciliation of shortfalls in training land resources is attempted through an increase in the volume of training that occurs. The increased amount of training activities has the potential to be environmentally significant if restorative measures are not in place to rehabilitate these training lands.

4.1.1 No Action Alternative

Implementation of the no action alternative would result in moderately adverse effects to training resources. The unresolved degradation of the Western Training Area resources would continue to constrain Fort Hood's ability to properly train Soldiers. Erosion would continue and new training damage would occur at a rate that is consistent with annual ITAM resources for rehabilitation.

The shortage of maneuver acres, intensive training schedule, and land features present challenges to land stewardship.

4.1.2 Alternative 1

Moderately beneficial effects would be expected. Partial implementation of the Plan would provide some restorative efforts to training resources. Although not every LRAM action could be completed, it would be expected that high priority actions in the Plan would be started. Table 5 in Appendix B demonstrates possible LRAM projects if the ITAM program received 50% of the funding requested.

This alternative would fund completion of 9,188 acres of CAT, 117 miles of CBT, 23 HATs, and 4,063 acres of TDR. These actions would overcome a substantial portion of the ITAM backlog, improve the condition of training resources and support an increased level of training.

4.1.3 Preferred Alternative

The preferred alternative would be expected to result in highly beneficial effects to training resources. The Plan provides for additional restorative actions to be performed beyond what it defined in the INRMP. Although the Plan would require training in some areas to be deferred for one year, the end result would be training lands that are more robust and more capable of supporting increased training afterwards. The backlog of ITAM projects would also be completed.

4.2 Physical Resources

4.2.1 No Action Alternative

Moderate beneficial effects would be expected. The INRMP includes a comprehensive soil resource management program that addresses erosion and sedimentation at Fort Hood. The LRAM program would continue to identify and repair sites where erosion has been determined to be a hindrance to training. However, measures to counteract adverse effects from overuse of the training areas would not be adequate to address current erosion rates.

4.2.2 Alternative 1

Beneficial effects would be expected. This alternative would provide some corrective actions for physical resources. Three ECS projects would be completed and 125 miles of FBM. LSM projects would continue to be on an as-needed basis. Sixteen acres of SAT and 10 PLC projects would be completed under this alternative. The overall condition of the Western Training Area physical resources would be improved.

4.2.3 Preferred Alternative

Highly beneficial effects would be expected. The preferred alternative would complement the INRMP soil resource management program. Impacts on soils associated with erosion and sedimentation on Fort Hood would be minimized. Existing sites where erosion has been determined to be a problem would be addressed through the LRAM component of the ITAM program and the Out Area Program. In addition, monitoring soil conditions to identify potential problem areas, implementing conservation measures, improving the type and area of vegetative cover, managing cattle grazing, and, when possible, avoiding activities likely to result in erosion would minimize potential impacts on the soil resource and result in a reduction in erosion at Fort Hood.

4.3 Water Resources

Sediment dislodged from upland areas on Fort Hood has been transported into streams and lakes. The majority of impacts on water quality result from concentrated sediment movement along unserviceable tank trails, maneuvering vehicles at stream and hilltop crossings, bare ground and excavation training. Land repair backlog contributes to some impacts. Minor impacts to water quality can result from the use of field laundries and water purification units used during field training. A potential negative impact on water quality can also result from oil drippings of vehicles or POL spills that are not quickly contained.

4.3.1 No Action Alternative

Surface Water

Moderately beneficial effects would be expected. The current INRMP establishes a formal plan of action for monitoring and protecting water resources, and includes watershed protection measures, non-point source pollution controls, and a comprehensive monitoring program designed to identify water quality problems at their onset. The INRMP also facilitates the identification of problem areas with high erosion and sedimentation and establishes protective riparian buffer zones to prevent degradation of water resources and aquatic habitats.

The Plan identifies 111 low water crossings that would be improved. If these crossings are not improved, they could pose a safety hazard to tactical vehicles. Erosion that increases silt deposition into streams would remain constant and in all likelihood increase over time.

Jurisdictional Waters of the US

Moderately beneficial effects would be expected. The INRMP would protect wetlands by providing a basis to evaluate and monitor habitat conditions through the development of a wetland database and management plan for Fort Hood. Establishing buffers would minimize potential impacts on wetlands associated with adjacent activities. Additional efforts would be made to reduce impacts on

wetlands by planning mission activities, when possible, in a manner consistent with wetland protection objectives. Where current activities might be affecting wetland functions, efforts would be made to identify the types and sources of impacts; where applicable, restoration of affected habitats would be implemented.

Groundwater

Implementation of the no action alternative is expected to have no impact on groundwater resources. There are no major uses of groundwater on Fort Hood and installation activities are not known to have an impact on groundwater recharge zones outside the installation.

4.3.2 Alternative 1

Surface Water

Moderately beneficial effects would be expected. Implementation of this alternative would fund work on 55 acres of XNG projects. Three ECS dams would be constructed. These actions would contribute to a general improvement of water resources. Surface erosion and sediment deposition would be expected to decrease as a result of these corrective actions.

Jurisdictional Waters of the US

Limited, moderately beneficial effects would be expected. The construction of ECS dams as well as limited CAT, HAT, and XNG activities would all serve to reduce sediment deposition into jurisdictional waters of the US. These activities could also reduce vehicular traffic in these areas.

Groundwater

Limited, if any, benefits to groundwater resources would be expected from implementation of this alternative. The potentially sensitive groundwater resources of the Paluxy formation and alluvial materials within and adjacent to Cowhouse Creek, Henson Creek, the Leon River, and the karst systems would be afforded some protection from sediment retention and decreased downstream erosion resulting from ECS construction.

4.3.3 Preferred Alternative

Surface Water

Moderately beneficial effects to surface water would be expected. The use of BMPs would also prove beneficial. Avoidance of maneuver traffic in stream crossings is preferred, however, the use of established and improved stream crossings (XNG projects) would prove beneficial. MAS projects could slow erosion by stabilizing gullies and not allowing them to become wider or deeper.

Jurisdictional Waters of the US

Moderately beneficial effects to wetlands would be expected. Establishing buffers would minimize potential impacts on wetlands associated with adjacent activities. Additional efforts would be made to reduce impacts on wetlands by planning mission activities, when possible, in a manner consistent with wetland protection objectives. Avoidance of wetlands is preferred. If this is not possible, dedicated use and maintenance of established crossings is acceptable. Where current activities might be affecting wetland functions, efforts would be made to identify the types and sources of impacts; where applicable, restoration of affected habitats would be implemented.

Groundwater

Limited, benefits to groundwater resources would be expected from implementation of the preferred alternative. Potentially sensitive groundwater resources would be afforded additional protection through the use of BMPs.

4.4 Natural Resources

4.4.1 No Action Alternative

The no action alternative would result in no effects or beneficial effects on terrestrial ecosystems. Maintaining a high level of habitat diversity is a priority of the INRMP. Implementation of the INRMP would result in improved habitat conditions, expansion of unique native warm season species, and control of nonnative invasive species at Fort Hood.

The Blackland Research and Extension Center is conducting research to determine the effectiveness of applying compost at various rates to training lands and its value for the establishment of desirable vegetation. The quality of water leaving the test areas is carefully monitored. There have been no indications that the water quality from samples leaving the site has degraded. Compost may be applied to larger areas of Fort Hood proven successful and the optimum application rate is established. This project will not only promote the establishment of vegetation on denuded and low fertility soils within the training lands, but also help alleviate a problem in areas with excess compost available.

Tall and mid-level native grass species such as Little Bluestem, Indiangrass, and Big Bluestem dominated many of the prairie sites prior to European settlement. Eventual overgrazing by livestock changed the species mix to mid-level grasses such as sideoats grama, silver bluestem, Texas wintergrass, tall dropseeds, tall grama and buffalograss, which are subdominants on the deeper sites. Military mission activities impact resources in several ways and to different degrees. Mature trees occasionally have their bark skinned away by military equipment or vehicles. These trees may become predisposed to remote insect attack. Others may be knocked over by equipment. Soil compaction may occur in some areas

that are repeatedly used for bivouac or staging areas. Trees in these areas may be weakened, and some die as a result of soil compaction.

4.4.2 Alternative 1

Partial implementation of the Plan would have beneficial impacts to natural resources. This alternative would further support the INRMP in maintaining a high level of habitat diversity. A 50% level of funding would support 25 acres of VEG projects and result in improved habitat conditions, expansion of unique native warm season species, and control of nonnative invasive species at Fort Hood.

4.4.3 Preferred Alternative

Highly beneficial effects would be expected. From the perspective of habitat, implementation of the preferred alternative would result in improved terrestrial habitat conditions for wildlife because maintaining a high level of native habitat diversity is a priority of the INRMP.

4.5 Threatened and Endangered Species

4.5.1 No Action Alternative

No effects would be expected. The current management of federally-listed endangered species would continue in accordance with the 2006 Fort Hood INRMP and the Biological Opinion issued by USFWS in March 2005. WSM actions are already covered in the INRMP.

4.5.2 Alternative 1

Since WSM actions are covered by the INRMP, beneficial effects would be expected. This alternative would fund the completion of 3,600 acres of WSM projects.

4.5.3 Preferred Alternative

Highly beneficial effects on federally-listed endangered species at Fort Hood would be expected, specifically the GCWA and BCVI. Current natural resource management practices at Fort Hood exceed the minimum requirements of the Endangered Species Act and adequately limit habitat take as coordinated with USFWS. Actions for natural resource management under the preferred alternative would continue to adaptive and would be expected to allow more impacts than the other alternatives.

Various pest management techniques (physical, biological, and chemical) could reduce the likelihood that TES are harmed directly or indirectly by invasive exotic species. Use of the pest management techniques outlined in the Fort Hood

Integrated Pest Management Plan (2004) would be expected to protect sensitive species in and around specific project sites. No pest management operations that have the potential to adversely affect endangered or protected species or their habitats would be conducted without prior coordination with the Natural Resources Management Branch and the USFWS.

4.6 Cultural Resources

4.6.1 No Action Alternative

The no action alternative provides for consultation and coordination with the Fort Hood Cultural Resources program prior to the initiation of any activity that might affect historic or cultural resources. The purpose of the consultation is to determine whether historic or cultural resources are in close proximity to the proposed activity and whether the activity would have the potential to adversely affect those resources. Under the no action alternative, the probability of disturbing potential cultural resources, including those identified between implementation of the previous INRMP and the current version, would be greatly reduced.

If the no action alternative were implemented, CAP projects would not be undertaken. The ten known cultural sites within the out areas would not be protected as described in the Plan. Although the sites could be identified as avoidance areas during training exercises, the sites would remain exposed to the elements.

The potential for adverse impacts on cultural resources in the out areas is comparable to those at military installations with substantial training missions. Impacts could result from maneuver damage from tracked or wheeled vehicles, vandalism or looting of historic structures or archaeological sites, earth-moving activities, unexploded ordinance removal, and natural processes of erosion that could be exacerbated by training activities in the vicinity of cultural resource sites.

4.6.2 Alternative 1

Beneficial effects would be expected. This alternative would fund the completion of five CAP projects through FY10. Although the five remaining sites would remain potentially exposed to the elements, they would still be off-limits to training activities.

4.6.3 Preferred Alternative

Highly beneficial effects on the cultural resources at Fort Hood would be expected. The CAP project refers to protecting historic properties within the out areas. Protection of the ten sites proposed in the Plan through the CAP process

would preserve them for future studies. Implementation of the preferred alternative provides for consultation and coordination with the Fort Hood Cultural Resources office prior to the initiation of any activity that might affect historic or cultural resources. The purpose of the consultation is to determine whether historic properties or other cultural resources are in close proximity to training activities and whether the activity would have the potential to adversely affect those resources. Under the preferred alternative, the probability of disturbing potential cultural resources, including those identified between implementation of the INRMP and this supplement, would be greatly reduced.

4.7 Cumulative Effects

CEQ defines cumulative impact as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR 1508.7).

A series of “quick look” questions developed by the US Army Environmental Center have been utilized during the cumulative effects analysis (CEA). These questions are helpful in screening subject VECs and to ascertain if detailed CEA is justified (Canter et al, 2005).

The following actions on and near the Western Training Area have been identified with regards to potential cumulative effects:

10-Year Range Development Plan Projects – Fort Hood proposes to construct or modify 18 ranges and their associated supporting facilities within the restricted live-fire area of Fort Hood, Texas. Under the proposed action, all 18 ranges would be constructed or modified to fit the Army’s emerging doctrinal training standards.

Road Improvements – In addition to the tactical vehicle road that is part of the proposed action, three pending road projects would benefit traffic flow at the post and in adjacent municipalities:

- (1) Extension of State Highway 195 and establishment of a new Control Access Point to divert traffic from on-post residential areas during peak hours;
- (2) Widening of Tank Destroyer Boulevard to four lanes from Clear Creek Road to Clark Road and establishment of a single commercial cargo entrance at Clark Road and US Highway 190, as well as the proposed addition of a reliever route on US 190 in Copperas Cove; and

(3) Improvements providing for an overpass/cloverleaf or widening of Clear Creek Road and State Highway 201 for travelers to Killeen-Fort Hood Regional Airport.

Sanitary Sewer Lift Station – To meet growing use of North Fort Hood as a training area and billeting cantonment for Reserve Component forces, Fort Hood proposes to construct a lift station to pump wastewater to the Gatesville treatment plant.

Texas A&M University Campus – Legislation pending in Congress would authorize Fort Hood's transfer of approximately 672 acres to the Texas A&M University System for development of a campus to serve 20,000 students. The essentially undeveloped land in the southeastern portion of West Fort Hood, in Training Area 74, is along State Highway 195, southeast of Robert Gray Army Airfield.

In addition to the above-mentioned projects, Fort Hood is undergoing transformation to modularity, as well as gaining more troops. These anticipated changes in training can be expected to result in an increase in the intensity and frequency of the training that occurs on the installation.

Over time, adoption of the preferred alternative would enable Fort Hood to achieve its goal of maintaining ecosystem viability and ensuring the sustainability of desired military training area conditions. Continued growth and development can be expected to continue in the areas surrounding Fort Hood. The preferred alternative is not be expected to significantly contribute to past, present or reasonably foreseeable adverse effects on the environment.

4.7.1 Training Resources

In addition to the above-mentioned projects, Fort Hood is undergoing transformation to modularity, as well as gaining more troops. These anticipated changes in training can be expected to result in an increase in the intensity and frequency of the training that occurs on the installation. Consequently, the amount of land rehabilitation required to maintain the training areas may have to be increased in scope or frequency. The Plan could eventually be amended to address the proposed increase in training.

4.7.2 Land Resources

The proposed action does not involve a new range or maneuver area, nor does it extend beyond the existing boundaries of either. The proposed site is managed through the ITAM program, of which the Plan is an extension. The proposed action would likely improve the ability to train on the Western Training Area, thus resulting in an increase in the level of intensity of military activity. The gullies and poor vegetative cover within the Western Training Area would be addressed through components of the Plan (CAT, TDR, VEG). Although sedimentation

downstream has been an issue in the past, it is anticipated that the proposed action will address these issues.

4.7.3 Water Resources

Fort Hood is not located completely or partially in a designated sole source aquifer area. Local surface waters have not been designated as having water quality concerns. It is likely that there are waters of the US that would be impacted by these projects. Since no inventory of wetlands at Fort Hood has been performed, there are no formal management activities for the installation. It has been the practice of Fort Hood to exclude potential jurisdictional areas from consideration for construction (direct impacts); however, these areas might be indirectly affected by ongoing installation activities such as military training activities, livestock grazing, hydrologic alterations, and urban and training area storm water runoff. Impacts to known or potential jurisdictional waters of the US would be avoided or minimized. The proposed action should not result in a loss or decrease in function of local wetlands resources.

4.7.4 Natural Resources

Fort Hood has an INRMP that is current through 2010. Fort Hood has maintained its commitment to ensure that environmental considerations are integral to the mission and has complied with Army Regulation 200-1, *Environmental Sustainability and Stewardship*; the Department of the Army's INRMP Policy Memorandum (21 March 1997), titled *Army Goals and Implementing Guidance for Natural Resources Planning Level Surveys and Integrated Natural Resources Management Plan*; and Title 32 of the *Code of Federal Regulations*, Part 651, *Environmental Analysis of Army Actions*. The INRMP provides the guidance necessary for Fort Hood to maintain compliance with the Endangered Species Act, the Clean Water Act, and Executive Order 11990 (Protection of Wetlands).

4.7.5 Threatened and Endangered Species

USFWS has recognized that Fort Hood is critical to the recovery of the BCVI and the GCWA. The INRMP includes a comprehensive Endangered Species Management Plan. However, there are currently no provisions for conservation or protection of TES and their habitat on private land. Environmental Defense has done some Safe Harbor agreements in the Fort Hood area on their own, but none have been done through or in coordination with the Army. A single conservation easement was funded through The Nature Conservancy. This was done so as a Conservation Recommendation under the 2000 Biological Opinion. Conservation Recommendations are discretionary agency actions that go above and beyond what the agency is required, to further assist recovery of the species. There was no premise to offset potential effects of the mission activities on Fort Hood. Fort Hood has done so well with TES management that USFWS

authorized strict training restrictions to be reduced on over 70,000 ac (1993 BO) to 47,000 ac (2000 BO), to 9,541 (2005 BO) on TES habitat. A potential future challenge is that Fort Hood's karst features are home to karst species endemic to Fort Hood. Fort Hood is the only currently known location for these rare species. It is possible that the species could become candidates for listing under the ESA.

4.7.6 Cultural Resources

The proposed action would not require an inventory of historic properties. The Western Training Area has been surveyed for cultural resources. Although historic properties are present, these sites have been identified and are scheduled for protective measures as part of the Plan. Overall, cultural resources at Fort Hood are expected to benefit as a result of the proposed action.

5.0 CONCLUSION

This EA has determined that known, potential, and cumulative impacts of the proposed action on the human and natural environment will likely be beneficial. Implementation of the ITAM Short Range Work Plan for FY07-11 should result in an improvement of land rehabilitation and training area availability. Although certain training areas will be deferred from training each FY, these areas will be given the opportunity for restorative practices to take effect. Ultimately, these areas will provide improved training resources for Fort Hood.

The preferred alternative is in accordance with the INRMP and other land-use/management agreements with non-Army agencies/parties. Therefore, it is determined that a Finding of No Significant Impact is appropriate for the proposed action, and a Notice of Intent to prepare an Environmental Impact Statement is not warranted.

6.0 REFERENCES AND PERSONNEL CONTACTED

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APPENDICES

Appendix A: Figures

Figure 1 - Fort Hood

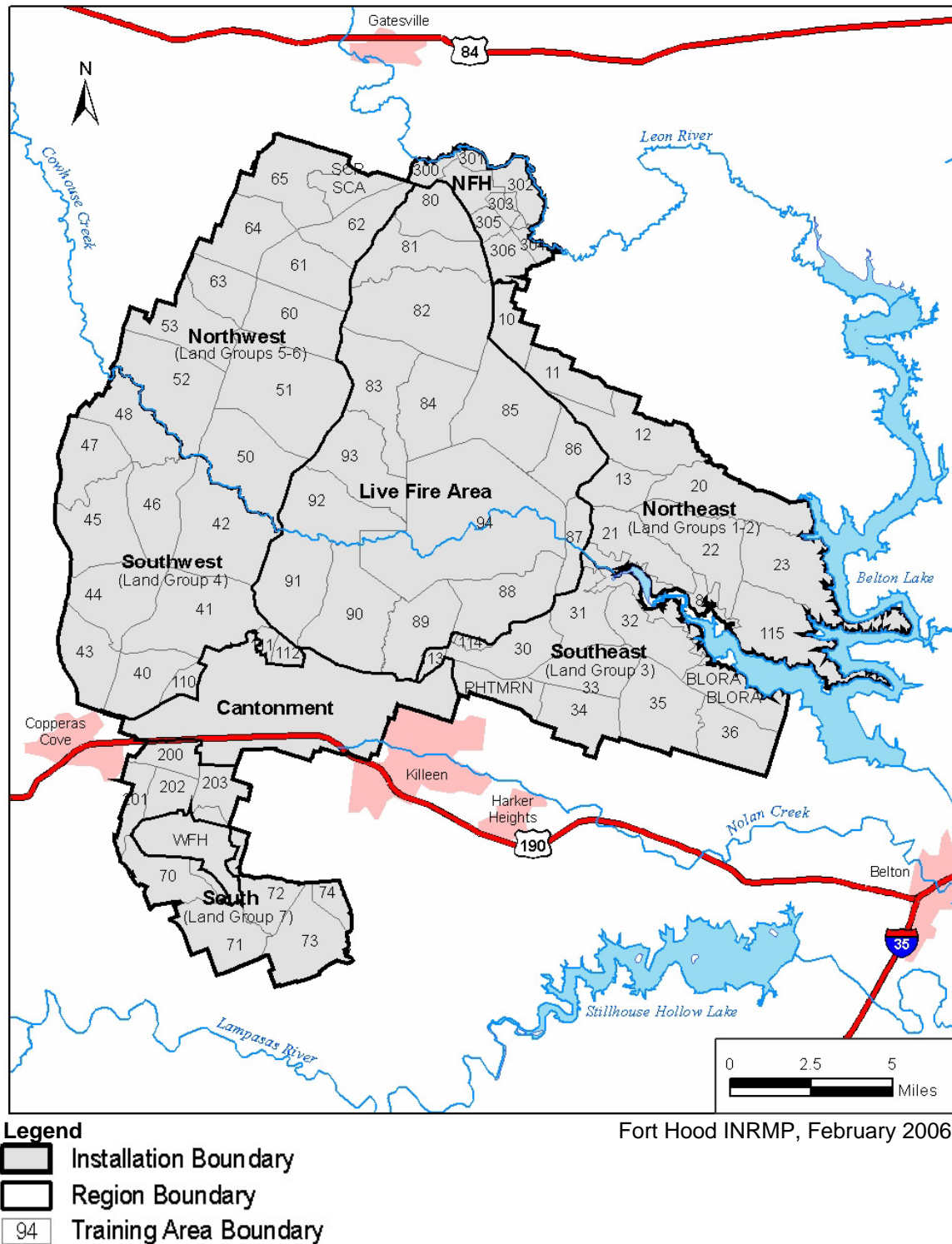
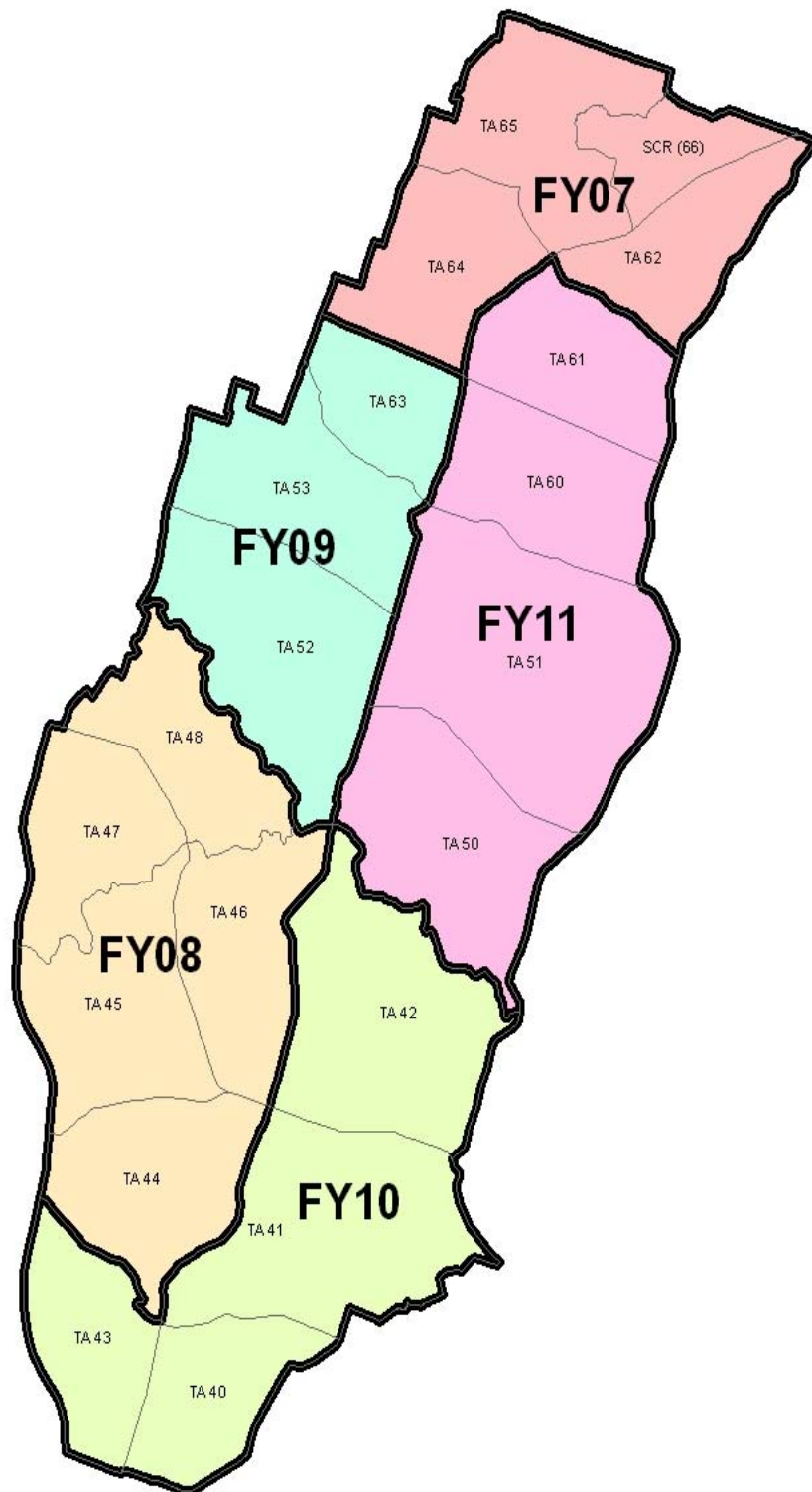


Figure 2 - Western Training Area



Appendix B: Tables

Table 3 – LRAM Project Summary

| LRAM PROJECT CODE | UNIT | FY07 | FY08 | FY09 | FY10 | FY11 | TOTALS |
|--|-------------|-------------|-------------|-------------|-------------|-------------|---------------|
| CAP , cap/protect cultural sites | ea | 2 | 2 | 2 | 2 | 2 | 10 |
| CAT , critical area and gully treatment | ac | 4,202 | 3,595 | 3,278 | 3,300 | 4,000 | 18,375 |
| CBT , combat trail Maintenance | mi | 37` | 62 | 33 | 58 | 42 | 232 |
| ECS , erosion sediment control dam | ea | 0 | 0 | 1 | 1 | 2 | 4 |
| FBM** , firebreak maintenance | mi | 50 | 50 | 50 | 50 | 50 | 250 |
| HAT , hilltop access trail | ea | 10 | 6 | 10 | 15 | 5 | 46 |
| LSM* , land sustainment maintenance | N/A | * | * | * | * | * | 0 |
| PLC , pipeline crossing | ea | 1 | 9 | 4 | 0 | 6 | 20 |
| SAT , staging area treatment | ac | 6 | 8 | 4 | 10 | 4 | 32 |
| TDR , training damage repair | ac | 1,500 | 2,800 | 1,100 | 1,625 | 1,100 | 8,125 |
| WSM** , woody species management | ac | 1,400 | 1,400 | 1,400 | 1,450 | 1,550 | 7,200 |
| VEG , vegetation establishment | ac | 5 | 5 | 5 | 5 | 5 | 25 |
| XNG , stream crossing | ea | 21 | 15 | 23 | 30 | 22 | 111 |

*LSM refers to repairing existing infrastructure on an as-needed basis.

**FBM, LSM, and WSM are covered in detail in the Fort Hood INRMP, 2006.

Table 4 – Out Areas by Fiscal Year

| FY | Training Areas (TAs) | | | | |
|-----------|-----------------------------|----|----|----------|----|
| 07 | 62 | 64 | 65 | 66 (SCR) | |
| 08 | 44 | 45 | 46 | 47 | 48 |
| 09 | 52 | 53 | 63 | | |
| 10 | 40 | 41 | 42 | | |
| 11 | 50 | 51 | 60 | 61 | |

Table 5 – Projected LRAM Activity if 50% Funding Received

| LRAM PROJECT CODE | UNIT | FY07 | FY08 | FY09 | FY10 | FY11 | TOTALS |
|--|------|-------|-------|-------|-------|-------|--------|
| CAP , cap/protect cultural sites | ea | 1 | 1 | 1 | 1 | 1 | 5 |
| CAT , critical area and gully treatment | ac | 2,101 | 1,798 | 1,639 | 1,650 | 2,000 | 9,188 |
| CBT , combat trail Maintenance | mi | 18 | 31 | 16 | 26 | 24 | 117 |
| ECS , erosion sediment control dam | ea | 0 | 0 | 1 | 1 | 1 | 3 |
| FBM** , firebreak maintenance | mi | 25 | 25 | 25 | 25 | 25 | 125 |
| HAT , hilltop access trail | ea | 5 | 3 | 5 | 8 | 2 | 23 |
| LSM** , land sustainment maintenance | N/A | * | * | * | * | * | 0 |
| PLC , pipeline crossing | ea | 0 | 5 | 2 | 0 | 3 | 10 |
| SAT , staging area treatment | ac | 3 | 4 | 2 | 5 | 2 | 16 |
| TDR , training damage repair | ac | 750 | 1,400 | 550 | 813 | 550 | 4,063 |
| WSM** , woody species management | ac | 700 | 700 | 700 | 725 | 775 | 3,600 |
| VEG , vegetation establishment | ac | 5 | 5 | 5 | 5 | 5 | 25 |
| XNG , stream crossing | ea | 11 | 7 | 11 | 15 | 11 | 55 |

Table 6: Common Species in Savannah Communities

| Common Name | Scientific Name |
|----------------------|---|
| Texas wintergrass | <i>Nassella leucotricha</i> |
| sideoats grama | <i>Bouteloua curtipendula</i> |
| threeawns | <i>Aristida</i> spp. |
| non-native bluestems | <i>Bothriochloa</i> and <i>Dichanthium</i> spp. |
| buffalograss | <i>Buchloe dactyloides</i> |
| seep muhly | <i>Muhlenbergia reverchonii</i> |
| silver bluestem | <i>Bothriochloa laguroides</i> |
| dropseeds | <i>Sporobolus</i> spp. |
| little bluestem | <i>Schizachyrium scoparium</i> |
| big bluestem | <i>Andropogon gerardii</i> |
| yellow Indiangrass | <i>Sorghastrum nutans</i> |
| broomweed | <i>Amphiachyris</i> spp. |
| ragweed | <i>Ambrosia</i> spp. |

Table 7: Common Species in Woodland and Forest Communities

| Common Name | Scientific Name |
|-------------------|--|
| Ashe juniper | <i>Juniperus ashei</i> |
| cedar elm | <i>Ulmus crassifolia</i> |
| common buttonbush | <i>Cephalanthus occidentalis</i> |
| flameleaf sumac | <i>Rhus lanceolata</i> |
| gum bumelia | <i>Sideroxylon lanuginosum</i> |
| pecan | <i>Carya illinoensis</i> |
| plateau live oak | <i>Quercus fusiformis</i> |
| post oak | <i>Quercus stellata</i> |
| saw greenbriar | <i>Smilax bonanox</i> |
| shin oak | <i>Quercus sinuata</i> var. <i>breviloba</i> |
| sycamore | <i>Platanus occidentalis</i> |
| Texas ash | <i>Fraxinus texensis</i> |
| Texas persimmon | <i>Diospyros texana</i> |
| Texas red oak | <i>Quercus buckleyi</i> |

Table 8 – Protected, Candidate, and Species of Concern¹

| Common Name | Scientific Name | Federal Status | *Status on Fort Hood ² |
|--------------------------------------|---|----------------|-----------------------------------|
| Federally Listed Species | | | |
| Whooping crane | <i>Grus americana</i> | E | B |
| Bald eagle | <i>Haliaeetus leucocephalus</i> | T | A |
| Black-capped vireo | <i>Vireo atricapilla</i> | E | A |
| Golden-cheeked warbler | <i>Dendroica chrysoparia</i> | E | A |
| Candidate Species | | | |
| Salado Springs Salamander | <i>Eurycea chisholmensis</i> | C | C |
| Smalleye shiner | <i>Notropis buccula</i> | C | C |
| Species of Concern | | | |
| Texabama croton ³ | <i>Croton alabamensis</i> | N/A | A |
| Salamander (new subspecies) | <i>Plethodon albagula</i> (new subspecies) | N/A | A |
| Karst-adapted invertebrates | Multiple species | N/A | A |
| Texas horned lizard ³ | <i>Phrynosoma cornutum</i> | N/A | A |
| Arctic Peregrine Falcon ³ | <i>Falco peregrinus tundrius</i> | DL | C |

Legend: Federal Status: **E** = Endangered **T** = Threatened
C = Candidate **N/A** = Not Applicable **DL** = Delisted

¹These species either occur or may occur on Fort Hood

²Status refers to population status on Fort Hood according to these definitions:

A = Population established on Fort Hood. Recent information documents an established breeding population (even if small) or regular occurrence, on the installation. This includes those species for which research and management is ongoing and several endemic cave invertebrates.

B = Recently recorded on Fort Hood, but there is no evidence of an established population. This includes species considered to be transient, accidental, or migratory (e.g. some migrating birds may use the installation as a stopover site during migration to and from their wintering grounds). For some species in this category, further inventory may reveal breeding populations.

C = Not known to occur on or near Fort Hood, but there is some possibility of occurrence

* Updated from the 10-Year Range Development Plan EA (2006).

³State-listed species that Fort Hood has no legal requirement to protect, only to consider.

Appendix C: Acronyms Used

| | |
|-------|--|
| Ac | Acre |
| BCT | Brigade Combat Team |
| BCVI | Black-capped Vireo |
| BO | Biological Opinion |
| CAP | Cultural Site Protection in Maneuver Corridor |
| CAT | Critical Area Treatment |
| CBT | Combat Trail Maintenance |
| CEQ | Council on Environmental Quality |
| CFR | Code of Federal Regulations |
| DPTMS | Directorate of Plans, Training, Mobilization, and Security |
| DPW | Directorate of Public Works |
| EA | Environmental Assessment |
| ECS | Erosion Control Structure |
| EIS | Environmental Impact Statement |
| FBM | Firebreak Maintenance |
| FY | Fiscal Year |
| GCWA | Golden-cheeked Warbler |
| GIS | Geographic Information Systems |
| GPS | Global Positioning System |
| HAT | Hillside Access Trail |
| INRMP | Integrated Natural Resources Management Plan |
| ITAM | Integrated Training Area Management |
| km | Kilometer |
| LG | Land Group |
| LRAM | Land Rehabilitation and Maintenance |
| LSM | Land Sustainment Maintenance |
| MAS | Maneuver Access Structures |
| MLC | Mulching |
| NEPA | National Environmental Policy Act |
| PLC | Pipeline Crossing |
| RTLA | Range and Training Land Assessment |
| SAT | Staging Area Treatment |
| SRA | Sustainable Range Awareness |
| SRP | Sustainable Range Program |
| SUB | Sub-soiling |
| TA | Training Area |
| TDR | Training Damage Repair |
| TRI | Training Range Integration |
| USFWS | US Fish and Wildlife Service |
| VEC | Valued Environmental Component |
| VEG | Vegetation Establishment |
| WSM | Woody Species Management |
| XNG | Stream Crossing |